CLAIMS

1. A method for determining an estimated operating parameter for a system comprising:

a. determining a first estimated operating parameter using an algorithm have an input from a sensor, wherein said algorithm includes a trim factor;

b. determining a first trim factor based on a comparison of the first estimated operating parameter and the output of the sensor when a condition of the second sensor is in a first mode, and

c. during a subsequent determination of the estimated operating parameter, applying the first trim factor to subsequently determine the estimated operating condition if the condition of the sensor is in a second mode.

2. A method as in claim 1 wherein the estimated operating condition is a emission level at an exhaust of a gas turbine and the sensor is single emission sensor.

3. A method as in claim 2 wherein the algorithm is a emissions transfer function having as inputs a compressor discharge and a combustion firing temperature.

4. A method as in claim 1 wherein the first mode of the sensor is an unhealthy sensor mode and the second sensor mode is a healthy sensor mode.

5. A method as in claim 1 wherein the first trim factor is a ratio of a prior estimated operating parameter and a current output of the sensor.

6. A method as in claim 1 wherein the trim factor is a ratio of an estimated operating parameter determined from a preceding determination of the estimated operating parameter and of a current output of the sensor.

7. A method as in claim 1 wherein the second sensor directly measures an actual operating parameter corresponding to the estimated operating parameter.

8. A method as in claim 1 wherein the estimated operating parameter is an estimated emission level, and the sensor is a emissions sensor sensing an actual emission level.

9. A method as in claim 1 wherein the sensor is a nitrogen oxide (NOx) emission sensor.

10. A method for determining an estimated operating emission level for an exhaust of a gas turbine comprising:

a. periodically determining an estimated emission level from an output of emissions transfer algorithm, wherein said algorithm includes a trim factor;

b. determining a current trim factor based on a ratio of a current output of a healthy emission sensor monitoring the exhaust and of the estimated emission level from a prior determination, and

c. applying a prior trim factor previously applied to determine the estimated operating condition if the emission sensor is unhealthy.

11. A method as in claim 10 wherein said emissions transfer algorithm receives inputs from at least one of a group of input parameters consisting of: compressor discharge temperature, specific humidity of ambient air, fuel split ratio and combustion firing temperature.

12. A method as in claim 10 wherein said emission sensor is a single sensor.

13. A method as in claim 10 wherein said emission sensor is deemed unhealthy during calibration of the sensor.

14. A method as in claim 10 wherein said emission sensor is deemed unhealthy while said sensor is operating outside of a predetermined range.

15. A method as in claim 10 wherein said emission sensor is deemed unhealthy during a period of steady state gas turbine operation and after said trim factor has been determined for said steady state operation.

16. A method as in claim 10 further comprising suspending said emission sensor when said sensor is deemed unhealthy.

17. A method as in claim 10 wherein the sensor is a nitrogen oxide (NOx) emission sensor.

18. A system for determining an estimated operating parameter for a gas turbine having an exhaust and a fuel controller comprising:

a controller including a processor executing a combustion temperature scheduling algorithm and emissions transfer function stored in electronic memory of the controller, wherein said scheduling algorithm outputs a temperature request signal applied to generate a fuel control command for said fuel controller and said scheduling algorithm receives as an input a emissions trim factor based on an estimated emission level generated by the emissions transfer function, wherein said emissions transfer function includes a emissions correction factor;

a emission sensor measuring a emission level in the exhaust, wherein said sensor has an operating mode and a suspended mode;

a emissions trim factor switch selectively operating said sensor in said modes, wherein said switch selects a current emissions correction factor or a prior emissions correction factor to be applied to the emissions transfer function on a sensor condition input signal applied to the switch.

19. A system as in claim 18 wherein the emissions correction factor is a ratio of a prior estimated operating parameter and a current output of the sensor.

20. A system as in claim 18 wherein said emission sensor is a single sensor.

21. A system as in claim 18 wherein said emission sensor is unhealthy during calibration of the sensor.

22. A system as in claim 18 wherein said emission sensor is unhealthy while said sensor is operating outside of a predetermined range.

23. A system as in claim 18 wherein said emission sensor is unhealthy during a period of steady state gas turbine operation and after said trim factor has been determined for said steady state operation.

24. A system as in claim 18 wherein the emission sensor is a nitrogen oxide (NOx) emission sensor.